

VII. CLAIMS

What is claimed is:

1. An isolated polypeptide comprising a suppressor of cytokine signaling (SOCS) sequence and a membrane translocation sequence.
- 5 2. The isolated polypeptide of claim 1, wherein the isolated polypeptide comprises the amino acid sequence set forth in SEQ ID NO:8.
3. An isolated nucleic acid encoding a polypeptide comprising a SOCS sequence and a membrane translocation sequence.
- 10 4. The isolated nucleic acid of claim 3, wherein the isolated nucleic acid encodes the amino acid sequence set forth in SEQ ID NO:4.
5. The isolated nucleic acid of claim 4, wherein the isolated nucleic acid comprises the nucleotide sequence set forth in SEQ ID NO:11.
- 15 6. A vector comprising the nucleic acid of claim 3.
7. A cell containing the vector of claim 6.
8. The composition of claim 1, wherein the membrane translocation sequence comprises SEQ ID NO:2.
- 19 9. The polypeptide of claim 1, wherein the polypeptide further comprises a purification sequence.
10. The polypeptide of claim 9, wherein the purification sequence is a polyhistidine tag.
- 20 11. A pharmaceutical composition comprising the polypeptide of claim 1, and a pharmaceutically acceptable carrier, diluent or excipient.
12. A method comprising:
administering the polypeptide of claim 1 to a subject.
- 25 13. The method of claim 12, wherein the subject is a subject with inflammation or at risk for inflammation.
14. The method of claim 13, wherein the severity of inflammation of the subject is reduced.
- 30 15. The method of claim 14, wherein the severity of inflammation in obesity, insulin resistance, type 2 diabetes, and metabolic syndrome is reduced.
16. The method of claim 13, wherein the inflammation is associated with an infection.
17. The method of claim 16, wherein the infection is a viral infection.

18. The method of claim 16, wherein the infection is a bacterial infection.
19. The method of claim 18, wherein the bacterial infection is a staphylococcus enterotoxin B infection.
20. The method of claim 13, wherein the severity of inflammation in the subject is reduced.
21. The method of claim 12, wherein the polypeptide is administered to the subject prior to or after surgery.
22. The method of claim 12, wherein the polypeptide is administered to the subject prior to or after contact with an infectious biological weapon.
23. A method comprising administering the polypeptide of claim 1 to a biological system.
24. The method of claim 23, wherein the biological system is an inflamed biological system or a biological system at risk for inflammation.
25. The method of claim 23, wherein the severity of inflammation of the biological system is reduced.
26. The method of claim 25, wherein the severity of inflammation in obesity, insulin resistance, type 2 diabetes, and metabolic syndrome is reduced.
27. A method of inhibiting a cytokine-induced response in a cell, comprising administering to the cell a complex comprising the polypeptide of claim 1.
28. A method of inhibiting a cytokine-induced response in a subject, comprising administering to the subject a complex comprising the polypeptide of claim 1.
29. A method comprising administering to a subject polypeptide comprising a mutated SOCS sequence, wherein the mutated SOCS sequence lacks or has a reduced suppressor of cytokine signaling function.
30. The method of claim 29, wherein the polypeptide further comprises a membrane translocation sequence.
31. The method of claim 30, wherein the polypeptide further comprises a purification sequence.